

## CLAIMS

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Having described the invention, what is claimed is as follows:

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1. A portable foldable ramp comprising

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first, second, third and fourth ramp sections, each section comprising a  
runway with an top surface and a lower surface and longitudinal first  
and second ends,

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a hinge connecting each pair of adjacent ramp sections end to end

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longitudinally, including a hinge bar,

end members on ramp section longitudinal first and second ends adapted

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with opposing end members of adjacent sections directly abutting

together when the ramp is unfolded, rotating on said hinges into and

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out of abutment such that load forces are conveyed through abutted  
sections to ramp ends, said hinge spaced apart from said end

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members so as not to interfere with said end member abutment,

wherein said hinges respectively connecting the abutting section ends are

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disposed under section runway lower surfaces such that all sections

curl together in a same first direction of rotation to fold and uncurl in a

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second direction of rotation opposite said first direction of rotation to

unfold, a runway undersurface of the first section at a ramp first end

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folding into parallel face-to-face opposition with a runway undersurface

of the second section forming a pair of sections, said pair of sections

rotating with the top surface of said first section folding into parallel  
2 face-to-face opposition with the bottom surface of the third section  
forming a trio of sections, said trio of sections rotating with the upper  
4 section of said second section folding into parallel face-to-face  
opposition with the bottom surface of the fourth section forming a  
6 compact quartet of sections.

2. The portable foldable ramp of claim 1 in which the end members come  
8 into abutment with adjacent sections unfolded to less than 180 degrees,  
the sections collectively forming an approximate arc bowed downward.

10 3. The portable foldable ramp of claim 1 further comprising strengthening  
ribs extending longitudinally along the respective runway bottom surfaces  
12 between section end members with the respective hinge bars passing  
through rib holes on one end and with rib hinge ears on another end  
14 extending from the ribs beyond the section ends to the respective hinge  
bar which passes through holes in the rib ears in like manner of the  
16 section panels.

4. The portable foldable ramp of claim 1 wherein the hinges are spaced apart  
18 from the runway bottom surfaces respective measured distances such that  
the ramp folds in curling fashion with sections in stacked nesting with  
20 section surfaces into close face-to-face opposition.

5. The portable foldable ramp of claim 1 wherein each section comprises a  
22 plurality of inverted open boxes with longitudinal ends of boxes collectively  
comprising section end members, with outer lateral sides of outer boxes

comprising section panels, and with inner lateral sides of boxes forming  
2 longitudinal strengthening ribs.

6. The portable foldable ramp of claim 1 wherein the hinge comprises  
4 said hinge bar passing through section hinge holes in a hinge plate  
extending vertically downward under the runway lower surface of a  
6 first, or lower, section inward the first section from a first section end  
member on a first section first end, and  
8 a hinge ear on a second end of a second, or upper, section adjacent the  
first section extending longitudinally downward from the second section  
10 under the runway lower surface of the first section aligning holes in the  
hinge plate and the hinge ear through which the hinge bar passes such  
12 that when the second section folds under the first section it is inward of  
the end member at the first section first end.

14 7. The portable foldable ramp of claim 6 wherein each second section of an  
adjacent pair is smaller than its subsequent adjacent first section such that  
16 it fits within it.

8. The portable foldable ramp of claim 6 wherein said hinge ears of said  
18 second adjacent section fit on the hinge bar inward of the hinge plate of  
the first adjacent section.

20 9. The portable foldable ramp of claim 6 wherein the sections further  
comprise vertical panels on section lateral sides from which the hinge ears  
22 and hinge plates extend.

10. The portable foldable ramp of claim 9 wherein the section panels of each  
2 side slide in scissor-like fashion with respective section panels of an  
adjacent section upon ramp folding, mutually aligning the folding sections.
- 4 11. The portable foldable ramp of claim 1 further comprising a wheel on each  
side of the third section near its end adjacent the second section  
6 extending beyond said end such that when the third section is folded into  
the fourth section, the folded ramp is wheelable on said wheels.
- 8 12. The portable foldable ramp of claim 11 wherein the fourth section is of  
length such that the folded ramp stands freely on its wheels and the fourth  
10 section distal end.
13. The portable ramp of claim 11 wherein the hinge bar between third and  
12 fourth sections is accessible as a handle in negotiating the wheelable  
folded ramp.
- 14 14. The portable foldable ramp of claim 3 wherein ribs of adjacent panels fold  
side by side in scissor-like fashion in aligning the sections during folding.
- 16 15. The portable foldable ramp of claim 14 wherein each first section rib  
comprises first and second parallel spaced apart rib members forming a  
18 slot therebetween aligned with a rib of the third section such that upon  
folding the first and second sections as a pair into nesting configuration  
20 with the third section, the ribs of the third section move into said first  
section slots, therein enabling the first section runway top surface to move  
22 into close parallel opposition with the third section lower surface impeded  
by third section ribs.

16. The portable foldable ramp of claim 14 wherein each second section rib  
2 comprises first and second parallel spaced apart rib members forming a  
slot therebetween aligned with a rib of the fourth section such that upon  
4 folding the first, second and third sections as a trio into nesting  
configuration with the fourth section, the ribs of the fourth section move  
6 into said second section slots, therein enabling the second section runway  
top surface to move into close parallel opposition with the fourth section  
8 lower surface impeded by fourth section ribs.

17. A portable foldable ramp comprising multiple segments hinged end to end  
10 and foldable on hinges, sections decreasing in size from a largest section  
on a first ramp end to a smallest section on a second ramp end, the ramp  
12 curling in folding beginning with the smallest section nesting in a next  
larger adjacent section until the two largest section on the first end  
14 sandwich the smaller sections nested therebetween with all sections in  
parallel disposition.

16 18. The portable foldable ramp section of claim 17 wherein all sections curl  
relatively in the same first rotational direction in folding, and in a same  
18 second rotational directional opposite the first rotational direction in  
unfolding, limited in unfolding rotation by section end to end abutment.

20 19. A portable foldable ramp comprising  
first, second, third and fourth ramp sections, each section comprising a  
22 runway with an top surface and a lower surface and longitudinal first  
and second ends,

a hinge connecting each pair of adjacent ramp sections end to end  
2           longitudinally,  
end members on ramp section longitudinal first and second ends adapted  
4           with opposing end members of adjacent sections directly abutting  
together when the ramp is unfolded, rotating on said hinges into and  
6           out of abutment such that load forces are conveyed through abutted  
sections to ramp ends, said hinge spaced apart from said end  
8           members so as not to interfere with said end member abutment,  
wherein said hinges respectively connecting the abutting section ends are  
10          disposed under section runway lower surfaces such that all sections  
curl together in a same first direction of rotation to fold and uncurl in a  
12          second direction of rotation opposite said first direction of rotation to  
unfold, a runway undersurface of the first section at a ramp first end  
14          folding into parallel face-to-face opposition with a runway undersurface  
of the second section forming a pair of sections, said pair of sections  
16          rotating with the top surface of said first section folding into parallel  
face-to-face opposition with the bottom surface of the third section  
18          forming a trio of sections, said trio of sections rotating with the upper  
section of said second section folding into parallel face-to-face  
20          opposition with the bottom surface of the fourth section forming a  
compact quartet of sections,

wherein the end members come into abutment with adjacent sections  
2 unfolded to less than 180 degrees, the sections collectively forming an  
approximate arc bowed downward,  
4 and wherein the hinge comprises  
a hinge bar passing through section hinge holes in a hinge plate extending  
6 vertically downward under the runway lower surface of a first adjacent  
section of an adjacent pair inward the first section from a first section  
8 end member on a first section first end, and  
a hinge ear on a second end of a second adjacent section of said adjacent  
10 pair extending longitudinally outward from the second section under  
the runway lower surface of the first adjacent section aligning holes in  
12 the hinge plate and the hinge ear of the adjacent pair through which  
the hinge bar passes such that when the second adjacent section folds  
14 under the first adjacent section it is inward of the end member at the  
first adjacent section first end,  
16 the sections further comprising vertical panels on section lateral sides  
from which the hinge ears and hinge plates extend, wherein the  
18 section panels of each side slide in scissor-like fashion with respective  
section panels of an adjacent section upon ramp folding, mutually  
20 aligning the folding sections,  
wherein the hinges are spaced apart from the runway bottom surfaces  
22 respective measured distances such that the ramp folds in curling

2 fashion with sections in stacked nesting with section surfaces into  
close face-to-face opposition,  
strengthening ribs extending longitudinally along the respective runway  
4 bottom surfaces between section end members with the respective  
hinge bars passing through rib holes on one end and with rib hinge  
6 ears on another end extending from the ribs beyond the section ends  
to the respective hinge bar which passes through holes in the rib ears  
8 in like manner of the section panels, wherein ribs of adjacent panels  
fold side by side in scissor-like fashion in aligning the sections during  
10 folding, wherein each first section rib comprises first and second  
parallel spaced apart rib members forming a slot therebetween aligned  
12 with a rib of the third section such that upon folding the first and  
second sections as a pair into nesting configuration with the third  
14 section, the ribs of the third section move into said first section slots,  
therein enabling the first section runway top surface to move into close  
16 parallel opposition with the third section lower surface impeded by third  
section ribs, and wherein each second section rib comprises first and  
18 second parallel spaced apart rib members forming a slot therebetween  
aligned with a rib of the fourth section such that upon folding the first,  
20 second and third sections as a trio into nesting configuration with the  
fourth section, the ribs of the fourth section move into said second  
22 section slots, therein enabling the second section runway top surface



- to move into close parallel opposition with the fourth section lower  
2 surface impeded by fourth section ribs.
20. The portable foldable ramp of claim 19 wherein the slots of said first and  
4 second sections divide the section runway into an inner surface  
sandwiched between outer surfaces.
- 6 21. The portable foldable ramp of claim 20 wherein the inner surface is  
different from the outer surfaces.

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